

ACC NEWS

President's Page: The Promise of Prevention: So, Why Aren't All Cardiologists "Preventive"?

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Perhaps the answer to the rhetorical question, "why aren't all cardiologists preventive?" lies in a quote attributed to American humorist W. C. Fields: "If at first you don't succeed, try again. Then quit. There's no use being a damn fool about it." As usual, there is truth in Fields' statement. People in general, and physicians in particular, are unlikely to repeatedly attempt that which they cannot achieve. Perhaps all cardiologists do not consider themselves "preventive" because of past therapeutic failures.

Such a defense might have been plausible before the plethora of data over the past two decades demonstrating not only reduction in atherosclerosis progression, but actual atherosclerosis reversal with aggressive medical and lifestyle management. Four classes of drugs (statins, antiplatelet agents, beta-blockers, and angiotensin-converting enzyme (ACE) inhibitors/angiotensin II receptor blockers [ARBs]) and three lifestyle components (cigarette smoking cessation, nutrition, and physical activity) have produced life-saving reductions in cardiovascular (CV) risk by modulation of atherosclerosis and CV disease pathophysiology.

Translation of this documented efficacy into clinical practice is our most critical need in cardiology today. With the adoption of a universal prevention mindset, we can actively address the burgeoning epidemic of CV disease and our impending shortage of trained CV specialists.

STATIN THERAPY

The 1987 launch of lovastatin, the first approved hydroxy methyl glutaryl-coenzyme A-reductase inhibitor, and the subsequent introduction of more powerful and therapeutically effective statins not only revolutionized treatment of patients with frank hyperlipidemia but also radically changed the treatment of at-risk patients. A solid body of evidence has demonstrated that statins reduce the risk of CV events in patients with established CV disease, patients at risk for CV disease due to cardiac risk factors, and even concomitant vascular disease (1). The magnitude of risk

reduction is on the order of 30%, and cost analyses calculate superior cost utility over other CV treatments such as revascularization interventions (2).

Accordingly, the National Cholesterol Education Program Adult Treatment Panel (NCEP ATP) III guidelines recently released an update stating that a low-density lipoprotein cholesterol goal of <70 mg/dl is a reasonable therapeutic strategy for patients at very high cardiac risk, such as those with known coronary artery disease, diabetes, the metabolic syndrome, or a recent cardiac event (3).

ANTIPLATELET THERAPY

Aspirin and other antiplatelet agents have been shown to be effective in preventing myocardial infarction (MI) at all CV risk levels studied. Aspirin, an inexpensive over-the-counter treatment, has a large body of evidence documenting its utility for risk reduction in patients with established CV disease (4). The overall magnitude of risk reduction in terms of death and non-fatal MI is approximately 25%. The evidence of effectiveness among at-risk patients encompasses studies of more than 55,000 subjects with cardiac risk factors (5). The consistency of MI reduction in these clinical trials highlights the reliability and homogeneity of these findings that patients at moderate risk can also benefit from aspirin therapy. Current American College of Cardiology/American Heart Association (ACC/AHA) guidelines indicate that low-dose aspirin therapy (81 to 325 mg daily) is indicated for all patients with established CV disease, as well as for patients deemed at moderate risk (10% 10-year calculated global risk). Cost-analysis evaluation of aspirin therapy demonstrates actual cost savings among these patient groups (6), a remarkable finding given ever-escalating health care costs.

BETA-BLOCKER THERAPY

More than 20 randomized controlled trials demonstrate the efficacy of beta-blocker therapy for the reduction of adverse events in patients with CV disease, as well as for at-risk patients undergoing surgery and anesthesia (7). Used in the

*Throughout his Presidential year, Dr. Wolk will present ideas important to College members, in collaboration with key ACC leaders and staff.

setting of post-MI, unstable angina, and congestive heart failure, the overall risk reduction is 25%. Subgroup populations also appear to benefit, including diabetics and patients with heart failure (8). The ACC/AHA guidelines call for the widespread use of beta-blockers in eligible CV disease patients (9). Many beta-blockers are now available in more affordable generic formulations.

ACE INHIBITOR/ARB THERAPY

Current ACC/AHA guidelines for secondary prevention in established coronary heart disease include beta-blocker use and strong consideration of ACE inhibitor use independent of hypertensive status (10). The guidelines suggest that these options also might be used as first-line medications in hypertensive coronary artery disease patients and diabetics. The seventh report of the Joint National Committee expanded this primary ACE inhibitor recommendation to hypertension in the setting of heart failure, post-MI, high coronary risk, diabetes, chronic kidney disease, and recurrent stroke prevention (9). The overall magnitude of risk reduction in terms of death and non-fatal MI is approximately 25%.

The ARBs have been intensively studied since the 1990s; they prevent the pathophysiologic effects mediated by the angiotensin II type 1 receptor when angiotensin II binds to it, thus blocking vasoconstriction, sodium absorption, aldosterone release, and vascular smooth muscle remodeling. The ARBs can probably be used interchangeably with ACE inhibitors, especially in patients with an ACE inhibitor-induced cough.

LIFESTYLE THERAPY

Comprehensive lifestyle change can sharply reduce CV risk. Specifically, cigarette smoking cessation (11), nutrition (12), and physical activity (13) can reduce risk of adverse events to a greater magnitude than medication, ranging from 50% for smoking cessation and nutrition to 20% to 25% for exercise. By controlling food intake and increasing exercise, patients can meaningfully alter their body mass index and affect their debilitating obesity. Such a concerted, combined effort also has a direct and positive impact on other manageable disease states, such as diabetes, that have been linked to heart stress (14).

Encouraging and achieving sustained lifestyle change remains a challenge for the physician and patient. However, new commercially available programs can provide patients with supportive medical supervision and case management in person, by telephone, or online. Such programs now have documented track records of assisting patients with long-term lifestyle and risk factor change (15).

COMPREHENSIVE AGGRESSIVE MEDICAL MANAGEMENT

Summary studies document the potent utility of combining all of these modalities for maximal CV risk reduction. Mukerjee *et al.* (16) observed a more than 90% reduction of death and recurrent event risk in the year following an acute coronary syndrome/MI among patients who were prescribed a statin, aspirin, beta-blocker, or ACE inhibitor. Despite these compelling data, national survey data indicate that only a minority of patients eligible by guidelines for these therapies in fact receives them (17).

IMPLICATIONS

Given this large body of clinical trial evidence documenting the utility of aggressive medical management to both prevent and reverse CV disease, this treatment gap has enormous implications for the training and practice of cardiology. First, it is time that all CV specialists recognize they must be "preventive cardiologists." We all need to push the paradigm from "intervention to prevention," working tirelessly to protect patients who are still healthy rather than treating rampant heart disease.

Second, training programs must prepare all cardiologists for the practice of prevention. Current ACC guidelines for cardiology training designate a minimum of a one-month (or longer) rotation in preventive CV medicine (18). Notably, an ACC survey conducted in 2000 found that although essentially all training programs had adequate facilities and faculty to provide this training, a minority (only 30%) actually performed the training (18).

Finally, it is time to re-evaluate what we "know" about managing cardiac patients now that we have so much new data on heart disease prevention. All of us consider significant three-vessel disease as an indication for aggressive revascularization therapy on the basis of results from such studies as the Coronary Bypass Surgery Study (CASS). The CASS and other studies are anchored in science and clinical data that are now decades old and that predate the statin-prevention revolution. Perhaps it is time to redo such studies and compare revascularization with "standard medical care," which must now include aggressive preventive strategies.

Cardiology must continue to evolve from the observational world of the 1960s to very aggressive intervention to a position of proactive prevention. Many cardiologists have much invested in the interventional treatment of CV disease, yet the evolution to a more preventive approach is inevitable. It will not come painlessly, and not without additional modern outcome studies testing the latest and most aggressive prevention strategies.

While we await these updated studies, all cardiologists should hear the call to be just as aggressive with prevention as they were with intervention. Experiential learning with prevention has been replaced with hard data reinforcing

strong front-end treatment. So, let's all try again. Our patients will thank us for it.

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